BY ORDER OF THE COMMANDER
45TH SPACE WING

AFMAN 23-110, VOLUME 2, PART 13,
CHAPTER 3

45TH SPACE WING
Supplement 1

15 JUNE 2003

Supply

ISSUE PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

NOTICE: This publication is available digitally on the AFDPO WWW site at: **http://www.e-publishing.af.mil.**

OPR: 45 LRF/CC (Maj Jeffrey N. Pruitt)
Supersedes AFMAN 23-110, Vol. 2, Part 13, Chapter 3_45SWSUP1, 15 March 1999

Certified by: 45 MSG/CC (Col Stephen J. Werner)
Pages: 11
Distribution: F;

This supplement implements and extends guidance of Air Force Manual (AFMAN) 23-110V2PT13CH3, *Issue Procedures*, and AFMAN 23-110V2PT13CH3_AFSPCSSUP1. This supplement describes 45 SW procedures for use in conjunction with the basic AFMAN and AFSPC Supplement. It applies to all 45 SW activities, tenants and contractors operated or supported by the USAF Standard Base Supply System. This supplement does apply to Air Force Reserve Command and Air National Guard units.

3.2.1. Organizations authorized access to the SBSS database (when they process the issue request) will forward copies of their rejects (295, item record not loaded, and 289, issue exception code unequal) along with the applicable issue document (AF Form 2005 or DD Form 1348-6) to Customer Operations when the request is mailed to Base Supply.

3.2.2.5. For individual equipment (IEE) items, see Customer Operations.

3.2.3. (Added) After Hours Priority Support. Call the duty supervisor listed in the Base Supply Management Duty Roster for those priority requests generated after 2400 hours daily, Saturdays, Sundays and holidays that cannot wait until the next duty day. The Base Supply Management Duty Roster is updated quarterly.

3.2.4. (Added) When contractor organizations have been alerted to provide coverage for a launch or test; and comparable supply coverage is necessary, submitted a formal request in writing to the 45 LRF/CC who will recommend approval/disapproval and forward to the Contracting Officer. If time does not permit a formal request, the 45 LRF Commander or his designated representative and provide justification. The supply contractor will be notified when approved. Launch critical spares (Account A2) for launch standby, testing, cleaning, repair, or modification will be processed using activity code "C" and demand code "N". These issues will be monitored on the D23, DIFM listing. DIFM status code "CTE" (no delinquency criteria) may be used to preclude issued standby items from becoming delinquent.

3.4. Contractor issue requests may be submitted via AF Form 2005, DD Form 1348-6, call-in, message, e-mail, or other electronic means. All requests must have the required information as listed in this chapter.

3.4.14.5. Priority issue requests other than those identified as fill or kill will be processed for fill or back-order. The customer will be notified by telephone whenever the request is killed.

3.4.20. (Added) Contractors may, if their contract allows, receive supply support from Base Supply with the exception of the following items, which will be provided in accordance with property control procedures or as directed by the property administrator:

3.4.20.1. (Added) Pharmaceuticals and medical items.

3.4.20.2. (Added) Local purchase uniform items.

3.4.20.3. (Added) Commissary items.

3.4.20.4. (Added) Blank forms.

3.4.20.5. (Added) Welfare and recreational materials.

3.4.20.6. (Added) Newspapers, periodicals, and technical publications.

3.4.20.7. (Added) Rentals - less than 30 days.

3.4.20.8. (Added) Service contracts.

3.4.20.9. (Added) Decals.

3.4.20.10. (Added) Sensitized graphic art supplies.

3.4.20.11. (Added) Missile fuels (for example, liquid nitrogen, liquid oxygen, helium) as listed in AFMAN 23-110, Vol. 1, Part 3, Chapter 4, Attachment 4D-1.

3.4.20.12. (Added) Bulk delivery items.

3.4.20.12.1. (Added) Top soil.

3.4.20.12.2. (Added) Gravel.

3.4.20.12.3. (Added) Asphalt - hot plant.

3.4.20.12.4. (Added) Concrete - redi-mix.

3.4.20.12.5. (Added) Carbon dioxide.

3.4.20.12.6. (Added) Propane – bulk.

3.4.20.12.7. (Added) Gravel 3/8" x 3/8.

3.4.20.12.8. (Added) Gravel 3/32" x 3/32.

3.4.20.12.9. (Added) Marble.

3.4.20.12.10. (Added) Lime rock.

3.4.20.12.11. (Added) Asphalt - liquid RC - 70.

3.4.20.12.12. (Added) Silica sand.

3.4.20.12.13. (Added) Other special or bulk requirements as approved by the property administrator.

3.4.20.13. (Added) Computers.

3.4.21. (Added) Contractor local procurement will be as specified by their contract's property control procedures.

3.4.21. (Added) The Research Element will provide research assistance on contractor program and provisioning documents as required.

3.4.22. (Added) When the stock number requested is the only one acceptable, and it is known that the item has a master or interchangeable relationship (M&I) with other stock numbers in the same interchange and substitute grouping (I&S), a "T" is required in cc 51 of the issue request. A letter must accompany the request stating why the interchangeable or master is not acceptable.

3.6.1. A bench stock established for a specific organization/shop code should contain, with minor exceptions, all ERRC code XB3 items repetitively used by the shop. Gases and random length items will not normally be included.

3.6.2. DD Form 1348-1, **DOD Single-Line Item Release/Receipt Document,** or facsimile, will be used for all bench stock items delivered to contractor organizations. (For range contractor audit purposes, a signature is required on all contractor ISU or DOR documents.) For Base Supply purposes, a signature is only required on bench stock ISU or DOR documents for sensitive or pilferable "D" code items and those with an extended cost of $1000.00 or more.

3.7.2. Bench Stock Support will not perform these tasks for contractors unless specifically requested by the property administrator and approved by the Supply Manager.

3.11. Ammunition procedures for contractors are contained in Chapter 10.

3.14. Base Supply will accept the DD Form 1348-6 without accompanying an AF Form 2005. When the DD Form 1348-6 is submitted alone, card columns 1-80 format must be completed the same as for AF Form 2005 as applicable (see Attachment A-3).

3.14.1. (Added) It is Department of Defense (DOD) policy to satisfy its requirements, to the maximum extent practicable, through competitive acquisition of commercial items. Instructions for preparing a commercial item purchase description are found at Attachment 3A-4 and Attachment 3A-10(Added). The commercial item acquisition procedures specified in the DOD supplement to the Federal Acquisition Regulation (DFARS) do not prohibit the use of brand name or equal purchase descriptions on acquisitions estimated to exceed the small purchase limitation. However, brand name or equal purchase descriptions are to be used only when other specifications or more detailed descriptions are not feasible. If your requirement can best be purchased by use of a brand name or equal purchase description, the purchase request must document why use of the purchase description is appropriate. If your requirement can be satisfied by a brand name item only, then you must provide a written justification in accordance with AFI 63-30_AFSPCSUP1, *Air Force Competition Advocacy* (see Chapter 3, paragraph 3.5 of this publication). The approval authority for the justification is 45 SW/CV for acquisitions up to $100,000 and HQ AFSPC for acquisitions over $100,000.

3.14.1.2. (Added) If the request needs additional information to permit processing, the requestor will be contacted by telephone, fax, or e-mail.

3.16.1. Air Force organizations, including contractors, which request withdrawals from DRMO through Base Supply must obtain a completed DRMS Form 103 from DRMO to withdraw an item form DRMO. If the withdrawal is for serviceable equipment, the Air Force organization will provide Base Supply with the stock number, quantity, condition, and EAID authorization. Serviceable EAID equipment can only be withdrawn by the appropriate equipment custodian. If the withdrawal is for EAID accountable, unserviceable equipment, the customer will provide Base Supply with a letter from their commander or designated

representative which states: "I certify this item will not be repaired, is not to fill a valid authorization, and will not be used for its intended purpose." If approved, Base Supply Pick-Up & Delivery will receipt for the property from DRMO and deliver it to the organization. Items in FSG 84 must be approved by the Individual Equipment Element before they are withdrawn.

3.16.2. Procedures for authorization of contractors to withdraw property from DRMO will be as directed by the property administrator of the applicable contract.

3.19.2. All AF Forms 1996, Adjusted Stock Level, submitted without a national stock number will be accompanied by a DD Form 1348-6 in four copies. AF Forms 1996 for contractors will always be submitted in triplicate. They will be forwarded through 45 CONS/LGCSB for review prior to supply initiating action. One copy of AF Form 1996 indicating approval or disapproval will be returned to the contractor. Items to be turned-in by contractors for retention in supply stocks will be submitted on AF Form 1996 to Base Supply with a DD Form 1348-6 which includes the complete description of the item and full justification for its retention. The AF Form 1996 will be annotated "Hold For Attrition - Do Not Procure." The material will not be turned in to supply until the AF Form 1996 has been approved. In accordance with AFSPC Supplement One, Special levels are not permitted for XB3 items.

3.25. (Added) Minimum Buy Criteria. The following policy will be applied by Base Supply for determining action to be taken when requisitions are returned from base procurement because of minimum buy criteria:

3.25.1. (Added) The due-out quantity will be increased only when the minimum buy return results in a change of item record unit of issue to conform with the minimum buy quantity, or when the customer has given the approval to increase the due-out quantity.

3.25.2. (Added) In the case of first-time demands or items for which the extended cost exceeds $100.00, supply will contact the requestor for one of the following decisions:

3.25.2.1. (Added) Increase the due-out quantity to the minimum buy quantity. (This action will be taken without contacting the organization if the extended cost is less than $100.00).

3.25.2.2. (Added) Buy only the requested quantity and pay premium price, as necessary.

3.25.2.3. (Added) Cancel the request.

3.25.3. (Added) In the event minimum buy results in a quantity or unit of issue change, the due-out document will be cancelled (DOC) with a "BJ" status code.

3.25.4. (Added) The original issue request document will be re-input, reflecting the minimum buy quantity or unit of issue change. Receipt of "BJ" status will serve as notice to the requestor that the quantity on the due-out is being increased. The supply location records must be adjusted to show this as the valid due-out quantity and is not to be cancelled during due-out validation or refused as overage upon receipt.

3.25.5. (Added) If the original quantity is ordered, justification for paying the higher price will have to be submitted to base procurement, signed at the appropriate level (to be determined by the organizational commander or equivalent). The document will contain the following statement:
"*Authority to procure (quantity) each at a price of $_____ is hereby granted. All factors, including price, storage facilities, inventory, and future requirements have been considered*."

3.25.6. (Added) When possible and practical, the unit of issue will be changed to agree with the minimum buy quantity when this is determined to be a constant minimum procurable quantity.

3.26. (Added) Test Acceptance of Equipment and Supplies Requiring Inspection and Acceptance:

3.26.1. (Added) When a local purchase will require test acceptance, the issue request will contain the statement "TEST ACCEPTANCE REQUIRED". The attached instructions will provide the name and telephone number of the individual to contact for coordinating the test requirement. They will also contain the following:

3.26.1.1. (Added) Instructions as to the type of test required to include critical tolerances and if the test is to meet manufacturer's published specifications.

3.26.1.2. (Added) Agency to perform test acceptance and specified location (at vendor site or delivery destination).

3.26.1.3. (Added) Estimated length of time required to perform the test upon receipt of the item at the delivery destination, if applicable.

3.26.1.4. (Added) The office, or contract directing the test acceptance, including the name and phone number and any other instructions the base contractor would need to effect testing arrangements.

3.26.2. (Added) Base contracting will be the final authority as to when an item can be inspected at vendor or contractor facilities or if the inspection will be performed at destination. In either case, the requirements for test acceptance will be included on the contract purchase order.

3.26.3. (Added) The off-line purchase request, DD Form 1348-1A, will be prepared by supply and annotated "TEST ACCEPTANCE REQUIRED" with a copy of the instructions attached to the DD Form 1348-1 and forwarded to base contracting for action.

3.26.4. (Added) Upon receipt of the material, it will be issued on a hand receipt to the requestor. The requestor will be responsible for routing it to the appropriate testing activity and having it returned within 15 days. If accepted, a "Certificate of Acceptance" will accompany the returned material. LOGOPS/LGRSR will process the material to stock or DOR as appropriate. If the requestor is downrange or ships, LOGOPS/LGRSR will coordinate with the contractors supply management office to determine appropriate testing arrangements.

3.26.5. (Added) In the event of rejection of property, a detailed technical report will be provided by the testing activity. Receiving will prepare a SF 364, Report of Discrepancy, attach the report thereto, and forward it to the contracting officer for disposition or corrective action.

3.27. (Added) Critical Spares are maintained on the A2 Satellite Account within Base Supply. Items so identified will be stored at Cape Canaveral AFS, building 1623, Warehouse 07. Identification, storage and issue procedures are as follows:

3.27.1. (Added) Critical spares must be submitted on AF Form 1996 in three copies with a DD Form 1348-6 for each item identified as a critical spare requiring Base Supply stockage.

3.27.2. (Added) Processing of AF Form 1996 will be in accordance with paragraph **3.19.2.** of this supplement. Copies of approved AF Forms 1996 and DD Forms 1348-6 will be forwarded to Warehouse 07.

3.27.3. (Added) The following listings are produced and copies forwarded to the requestor to assist in managing critical spares:

3.27.3.1. (Added) U83 problem item list is produced weekly. This listing is used to ensure the out of stock condition is placed on order.

3.27.3.2. (Added) U54 part number sequence listing is produced quarterly and used to cross part number to stock number and book number.

3.27.3.3. (Added) U18 (two-part listing) is produced quarterly. The part-one is in stock number sequence which crosses stock number to booking number and part-two crosses booking number to stock number.

3.27.3.4. (Added) M14 stock number user directory is produced quarterly. It provides up-to-date stock number information.

3.27.3.5. (Added) R35 special level review listing is used for review and validation of special levels.

3.27.4. (Added) Request for issue or turn-in will be processed through Warehouse 07, building 1623, Cape Canaveral AFS.

3.27.5. (Added) Issue procedures are as follows:

3.27.5.1. (Added) Call Warehouse 07 (phone 853-6305 or go to building 1623, Cape Canaveral AFS) for over-the-counter issues.

3.27.5.2. (Added) All issues are over the counter or customer pick-up. Individuals signing for property must be authorized on a pre-approved list maintained in Warehouse 07. No property will be delivered.

3.27.6. (Added) Turn-in procedures are as follows:

3.27.6.1. (Added) Ensure special levels for the item have been approved prior to turn-in.

3.27.6.2. (Added) Ensure the item is cleaned and properly tagged.

3.27.6.3. (Added) Indicate the booking number that is assigned.

3.27.6.4. (Added) Warehouse 07 must be informed prior to processing the turn-in for storage.

3.27.6.5. (Added) Personnel in Warehouse 07 will ensure that there is an approved special level and sufficient data available on the item. If it is stock listed in the Management List (ML) and not coded as local purchase, additional description is not required. If the item is coded as local purchase and there isn't sufficient description available in the Identification List (IL) to purchase the item, or when a National Stock Number isn't furnished, a DD Form 1348-6 with complete description will be furnished.

3.27.6.6. (Added) It is the contractor's responsibility to ensure that the correct item is turned in prior to it being stocked in Warehouse 07.

3.27.6.7. (Added) Warehouse 07 personnel must ensure that a copy of the approved AF Form 1996, and either the IL or the DD Form 1348-6 is available to the contractor for validation of turn-ins and receipts.

3.27.6.8. (Added) Unserviceable items, identified as critical spares by the 45 SFOS, which are coded as reparable (XD or ND), and are beyond base capability, will be returned to Warehouse 07.

3.28. (Added) **Overview Of Hazmat.** Historically, Air Force bases have had difficulty controlling hazardous materials (HAZMAT). One main reason for this problem is the multiple procurement options customers have to obtain HAZMAT materials. Quantities of HAZMAT enter the base via Government Purchase card, contractors CLIN and other means outside of the Base Supply System making it difficult to determine accurately the amount of HAZMAT in use on the Air Force Base. These problems, coupled with stringent Environmental Protection Agency (EPA) and Occupational Safety Health Administration (OSHA) regulations, require the Air Force to change the way it manages HAZMAT. Legislative and regulatory requirements being imposed by the Emergency Planning Community Right-to-Know Act (EPCRA) and Pollution Prevention Act of 1990 (PPA) as a result of Executive Order 12856, require Air Force bases to account for all HAZMAT from "cradle to grave."

3.28.1. (Added) Items Classified As Hazardous (Hazmat). HAZMAT is any material with an Issue Exception Code (IEX) 8, 9, or M. Basically the items fall into the following groups:

3.28.1.1. (Added) Petroleum products such as oils, grease, lubricants, etc.

3.28.1.2. (Added) Paints.

3.28.1.3. (Added) Certain photographic chemicals.

3.28.1.4. (Added) Adhesives and sealant.

3.28.1.5. (Added) Solvents.

3.28.1.6. (Added) Acids and bases.

3.28.1.7. (Added) Compressed gases.

3.28.2. (Added) The Hazardous Materials Pharmacy (HAZMART) assigned to Base Supply will be responsible for the issue and control of hazardous materials (HAZMAT). All organizations, which use, handle or store HAZMAT will be enrolled with the HAZMART (see 45 SW Supplement 1 to Chapter 1).

3.28.3. (Added) Requests for HAZMART are processed and delivered according to the specified delivery priority and urgency of need indicated. Hazardous materials requested between 0730 and 1615 hours, Monday through Friday, will be delivered by the HAZMART Pharmacy personnel. Emergency requests may be submitted and are processed by the Base Level Supply, After Hours Support Element.

3.28.4. (Added) The Base Supply HAZMART Pharmacy is responsible for the issue, receipt, and control of hazardous materials. According to the 45 SW HAZMART policy letter, all organizations, which use, handle, or store HAZMAT will be enrolled with the HAZMART Environmental Information Management System (EMIS). The following are responsibilities of the HAZMART Pharmacy:

3.28.5. (Added) Provide prompt delivery and pick-up of hazardous material, according to the specified priority, from 0730 to 1615 hours, Monday through Friday (emergency requests will be processed by the Supply After Hours Support).

3.28.6. (Added) Requisition all hazardous materials required and approved using EMIS. Establish and maintain demand levels.

3.28.7. (Added) Provide accurate Material Safety Data Sheet (MSDS), with all hazardous material delivered, unless a current MSDS for the required material is already loaded in the EMIS.

3.28.8. (Added) Provide an issue/due out release document with each delivery.

3.29. (Added) Customer Responsibilities. The customer will accomplish the following:

3.29.1. (Added) Enrollment with the HAZMART via EMIS. The HAZMART will schedule a meeting with your shop, and a Bioenvironmental Engineering Services (BES) representative to discuss enrollment program procedures and specific shop responsibilities.

3.29.2. (Added) Establish a minimum of one primary and two alternate HAZMART Monitors per each shop/work shift. This will ensure complete coverage during all shift operations.

3.29.2.1. (Added) Provide, in writing, any changes to account numbers, delivery locations or HAZMART Monitors prior to Permanent Change of Station (PCS), separation, or extended Temporary Duty (TDY).

3.29.2.2. (Added) HAZMART Monitors will serve as the point of contact (POC) between the HAZMART and the organization or shop. They will sign for all issues or due-out releases when hazardous material is delivered.

3.29.3. (Added) Prior to purchasing hazardous materials with an GPC card or SF 44, the customer will provide a signed statement explaining why the item can't be purchased through the Standard Base Supply

System (SBSS). The statement will be coordinated through the HAZMART and BES for validation and record keeping. Required quantities and manufacturers information will be provided for each request.

3.29.4. (Added) Maintain no more than a 30-day supply of hazardous materials. Return excess materials to the HAZMART according to established procedures in the HAZMART Customer's Guide. The guide also provides guidance for extensions.

3.29.5. (Added) Ensure all residue/containers are non-leaking and safe to handle. The Material Safety Data Sheet (MSDS) must accompany all turn-ins. The container must be able to withstand normal handling or the turn-in will be rejected. If the container is not in suitable condition for turn-in, refer to the HAZMART Customer's Guide for assistance.

3.29.6. (Added) When adding items to the shop's hazardous material approval listing, a Bioenvironmental Engineering Chemical Approval Worksheet must be approved by BES. The completed BIO Worksheet will be provided to the HAZMART.

3.29.7. (Added) If you have a MSDS missing, contact Bioenvironmental Engineering Services (BES) 494-5435 to obtain one.

3.29.8. (Added) Provide a written request to the HAZMART to remove items from the shop hazardous material approval listing.

3.29.9. (Added) When hazardous material is required which cannot be ordered or purchased through the HAZMART, (for example: emergency request), the following procedures must be followed:

3.29.9.1.1. (Added) If the item is not on the shop's hazardous material approval listing, a BIO worksheet must be submitted and approved by BES. The customer will forward a copy of the approval to the HAZMART. All items purchased offsite must be brought to the HAZMART for appropriate bar-coding and entry into the EMIS tracking system.

3.29.9.2. (Added) Material purchased off-site which is already on the shop's hazardous material approval listing will be brought to the HAZMART for bar-coding and entry into the EMIS tracking system.

3.30. (Added) The issue of compressed gases is normally done on an even exchange basis (one for one). When full cylinders are issued from the HAZMART Pharmacy, there are 2 yellow DD Forms 1574, Serviceable Tag-Material, attached to the cylinder. One indicates the stock number for the gas inside ("6830" stock class), and the other stock number ("8120" stock class) for the cylinder. Since the turn-in of the empty cylinder is an important part of the exchange process, the following information is provided:

3.30.1.1. (Added) An empty cylinder is defined by Technical Order 42B5-1-2 as one containing between 5 and 24 PSIG. Remove the DD Form 1574 with the "6830" stock number which indicates that the gas has been consumed.

3.30.1.2. (Added) Write or stamp "MT" on the DD Form 1574 for the "8120" stock number, indicating that the cylinder is empty.

3.30.1.3. (Added) Ensure that the correct stock number is on the tag of the empty cylinder being exchanged. This is especially important on technical oxygen as it comes in cylinders of 200, 220, and 250 cubic feet. To verify that the correct stock number is on the cylinder, check the shoulder of each cylinder for the ICC number that is stamped in the metal. This number is used to identify the cubic foot capacity of the cylinder. The following guide is provided:

3.30.1.3.1. (Added) ICC number 1800 is for a 200 cubic foot cylinder, NSN 8120001519758.

3.30.1.3.2. (Added) ICC number 2015 is for a 220 cubic foot cylinder, NSN 81200012057202.

3.30.1.3.3. (Added) ICC number 2265 is for a 250 cubic foot cylinder, NSN 8120003577992.

Attachment 3A10(Added)

PURCHASE DESCRIPTION FOR 160-TON TRAILER MOUNTED AIR COOLED CHILLER

3A10.1. (Added) Furnish one (1) each factory assembled air-cooled multiple serviceable semi-hermatic compressor liquid chiller package with capacity of a minimum of 160-nominal tons (maximum of 180-nominal tons is acceptable) using refrigerant 22. Unit should cool minimum of 105 gpm with a maximum of 535 gpm of water from 54 to 44 degrees F with an air cooled condenser of at least 1,920,000 THR BTU's with a 105 designed ambient temperature with air entering at 105 degrees and leaving at 115 degrees.

3A10.2. (Added) Unit shall operate on 460 volts (up to 480 volts is acceptable), three phase, 60 hz, with line voltage limits of 420 volts to 500 volts. Control power shall be 115 volt, single phase, 60 hz, furnished from one (1) each step down transformer 460 volts (up to 480 volts is acceptable) primary to 115 volt factory provided, field installed.

3A10.3. (Added) Maximum dimensions of unit on trailer: Length 40' 0"; Width 7' 4"; Height 11' 0". Length and width may vary but the height must be 11' 0" or less.

3A10.4. (Added) Package chiller will have a minimum of two and a maximum of six reciprocating, serviceable semi-hermatic type compressors, and shall have an automatically reversible oil pump and operating oil charge. Compressor will be equipped with individual suction and discharge service valves (schrader-type valves are not acceptable). Each compressor should bolt to spring vibration isolators. Each compressor motor should be cooled by suction gas passing around the motor windings and shall be thermally protected. Each compressor should be equipped with insertion type crankcase heaters to control oil dilution during shutdown. A time delay shall be factory installed to prevent rapid compressor recycling.

3A10.5. (Added) Magnetic circuit breaker will be factory installed in control panel and should be calibrated manual reset and ambient insensitive. They shall open all 3 phases should an overload occur in any phase.

3A10.6. (Added) Each compressor discharge line should have factory installed mufflers. A crankcase oil sight glass should be factory provided on each compressor. Any two or more compressors operating on same refrigerant circuit will employ crankcase oil equalizing lines.

3A10.7. (Added) Cooler section should be shell and tube type, with removable heads. It should have at least two independent direct expansion refrigerant circuits on multiple compressor units. Seamless copper tubes shall be rolled into tube sheets. The shell should be covered with minimum of 1" layer of foamed glass vapor barrier insulation, (close fitting cellular rubber insulation is acceptable) with K valve of at least 0.39. With at least two refrigerant circuits (may have more) should be provided employing individual thermostatic expansion valves.

3A10.8. (Added) Each circuit should include: hot gas muffler, combination moisture indicator and sight glass with refrigerant filter dryer. Filter dryer to be of replaceable core type to permit field changing of elements without removal of case and provisions for bypass circuit to prevent interruption of normal operation of chiller unit. A charging valve should be provided for each refrigerant circuit. All suction lines should be factory insulated with close fitting cellular insulation with a minimum thickness of at least 0.75 inch.

3A10.9. (Added) Condenser shall be air cooled and constructed to provide positive sub cooling of liquid refrigerant. A liquid refrigerant receiver with pressure relief valve and liquid shut-off valves (inlet and outlet) will also be provided with unit to include multiple fans with high side fan cycling controls.

3A10.10. (Added) Package chiller unit should have separate power and control sections. All power starting, safety, and operating controls shall be factory mounted and wired in a weather-proof compartment. This panel should include, as a minimum, automatic reset low pressure controls, manual reset high pressure controls, manual reset oil failure controls for each compressor circuit. Chiller freeze protection with manual reset field calibrated device, factory installed, directly sensing chilled water temperature. Compressor line starters, contactors, and a multiple-step chilled water temperature controller to ensure staggered start of multiple compressors. With digital or dial type flow metering device. Digital leaving water temperature display.

3A10.11. (Added) Control: To include compressor indicating lights, start-stop button, control power fuse or circuit breaker and manual switch to change starting sequence of compressors from one refrigerant circuit to the other. A gage panel with positive shut-off valves to indicate suction and discharge pressure on each refrigerant circuit.

3A10.12. (Added) Proportional capacity control for electric unloading of compressor cylinder banks to rapidly match changing cooling loads.

3A10.13. (Added) A factory supplied, factory installed, flag or differential flow switch shall be provided in leaving chilled water line.

3A10.14. (Added) Factory provided compressor motor thermal protection and single-phase protection to be provided by manufacturer.

3A10.15. (Added) Factory provided pump package will consist of two pumps sized for chiller unit. One pump will serve as a backup. The pumps will include bypass circuit to balance chilled water flow to varying structures, check valves and positive shut-off valve on suction and discharge of each pump to provide removal and replacement of each pump without interfering with operation of chiller unit. Each pump shall be powered by a totally enclosed fan cooled electric motor capable of withstanding wet or marine environments with weatherproof electrical connections.

3A10.16. (Added) All units shall be completely factory-assembled on a heavy-duty industrial structural steel frame, formed of channels and angles as a single pre-engineered package. All exposed metal surfaces will be painted with two coats of rust inhibiting paint and finished with vendor colors and markings.

3A10.17. (Added) The chiller package unit shall be trailer mounted capable of supporting a minimum of 120 percent of the chiller package weight. It will include a spindle type trailer coupling rated for the maximum trailer, gross vehicle weight. It shall be equipped with complete lighting system that meets Department of Transportation requirements for highway use, to include stop, turn, and clearance lights. It also will be equipped with dual gear type tongue Jacks with a common crank and flat type foot pads for firm ground support. Jacks must able to maintain trailer in a level position. Trailer should allow for maintenance personnel to have easy access of control panel. All exposed metal surfaces shall be painted with two coats of rust inhibiting paint and finished with vendor colors and markings.

3A10.18. (Added) Complete package chiller assembly to include manufacturer's literature and specifications covering installation, operation, maintenance, and repair manuals. Manufacturer to furnish repair parts lists (3 copies), indicating recommended spare parts for unit.

J. GREGORY PAVLOVICH, Brigadier General, USAF
Commander